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ABSTRACT

This study tests the effectiveness of 2 approaches to parenting instruction for parents of preschool developmentally delayed children aged 3 through 5. Sixty parent/child pairs were randomly assigned to 1 of 3 groups: (1) individual parenting instruction only, (2) individual plus group instruction, and (3) comparison group with no instruction. Parent instruction programs were individually designed to teach parents to change their interactions with their child, decrease areas of conflict, and increase self-esteem of both parent and child. Pre- and post-treatment assessment included direct observation of play sessions and administration of a battery of standardized tests. Pre-tests showed no significant differences between the 3 groups. Post-tests indicated that there were changes in both parents and children. Final assessment after 1 year indicated that the treatment groups were clearly different from the comparison group and individual instruction appeared to be both economical and effective. While interactional changes occurred, overall child developmental levels and parent appraisals of their children's developmental delays remained the same. Children in treatment groups made large positive gains in social interaction. Results suggest that high negative affect between mothers and developmentally delayed children can be changed. (Author/RH)

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COMPARING WAYS OF ALTERING PARENT-CHILD INTERACTION

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COMPARING WAYS OF ALTERING PARENT-CHILD INTERACTION

INTRODUCTION

A. Problem

Research from which the present study developed yielded serviceable procedures for guiding parents in modifying, augmenting, and improving interactions with their children. The goals of the program were to lessen tensions and areas of conflict and to enhance the self-esteem, confidence, and competence of parent and child. Parents of developmentally delayed children encounter many problems: often they have little concrete and specific guidance in responding appropriately to their child's behavior; commonly accepted childrearing principles may or may not be suitable; parenting may be an unrewarding experience.

The usefulness of the parenting-instruction approach had been confirmed with young handicapped (cerebral palsied) children and their mothers, and with a number of other instances of parent-child problems in which developmental delay or mental retardation proved to be a significant component. The present proposal was designed to test the effectiveness of the parenting-instruction approach with parents of preschool-age children identified as being developmentally delayed or mildly to moderately retarded. It also assessed the relative practical utility of substituting group instruction for individual instruction in half the contacts.

B. Related Research

1. By Others

Britton and Thomas (1973) point out that a child, whether normal or disabled, begins life with a relatively small number of behavior patterns, and that his repertoire expands as he learns to do certain things for himself. Furthermore, in addition to simple physical maturation, the child learns through social interaction, and this in turn is colored by the common standards of conduct and behavior which a culture expects from its members. Thus, the role of the mother (parents, or caretakers) in the social learning of the child is undeniably important, and its importance in the development of the handicapped child is grossly magnified. Society helps to define the behavior expectations and standards for normal children. There are few, if any, available guidelines to help parents set appropriate behavioral goals for their disabled child.

Recognition that socialization of the child is rooted in his experiences in social interaction requires that one also recognize the two-way, reciprocal character of interaction. Bell (1968) has pointed out and documented the extent to which mothers respond differentially to variant qualities of infant behavior. It is apparent, and readily confirmed, that the mother of the handicapped or slowly developing child participates in transactions which may be less

rewarding and provide her with far less positive feedback than mothers of normal children usually experience. Lax (1972) pursued these implications even further in her discussion of the interaction between mother and impaired child, using the concept of the narcissistic trauma of the mother to explain a protracted self-perpetuating cycle of guilt, anger, rejection, and depression on the part of the mothers.

These interactive experiences on the part of mothers and handicapped children take place from birth on, and naturally precede and form the foundation upon which must rest both the parents' identification and acceptance of the handicap and their readiness to participate in habilitation programming.

A number of studies have been concerned with the impact of handicapped children on their families and have attempted to analyze and describe parental attitudes and adjustment processes. Most of the problems of family impact and adjustment are common to a variety of handicapping conditions. Wolfensberger (1967) pointed out that repetitive stereotypes and cliches characterized many of the statements. Nevertheless, it seemed possible to distinguish between those studies concerned with the immediate impact of the knowledge and acceptance of the child's handicap on family members' adjustment, and those which focused on their later long-term adaptations.

The adjustment of the family to diagnosis of a handicap in the child has often been discussed in terms of crisis adaptation, with its characteristic process of progressive stages from denial through grief to acceptance. Wolfensberger (1967) followed this line of thought with the suggestion that there might be different types of crises. The families might experience difficulty over the unexpectedness of the diagnosis, over the extent to which its implications conflicted with their established goals and values, or over the practical difficulties of coping with and caring for the handicapped child. There are also, of course, differences in the rate at which, or completeness with which, parents work through the various stages of adaptation.

A framework for management of parents of the mentally retarded advanced by Wolfensberger broadens our views of both the problems and possible management options. The three stages presented are novelty shock, value conflicts and reality stress. The reality stress results from the situational demands of raising or caring for the retarded person.

Cummings (1966) studied 240 mothers of deficient children and concluded not only that the situation caused ongoing stress for the mothers, but that we must find the means to maintain these parents' self-esteem and confidence in their abilities to care adequately for all of their children and to offer psychological climates conducive to the children's optimal development.

Another important consideration raised in the literature is that there may be differences in parental reaction according to

specific factors in the situation. Cook (1963), for example, demonstrated that parental rejection was more likely to be associated with a mild handicap, while parental over-protection was associated with more severe conditions. Farber (1968) reported that the initial stress of mental retardation was sex-linked and that mothers were more disturbed when the retarded child was a girl.

Poznanski (1973) raised the question, "Can the psychological limitation of handicapped youngsters be traced to the parenting process?" Poznanski suggested that parental reactions to a handicapping condition that appears in any older child follow a course similar to that of response to birth of a defective child.

The parents of the dull normal and mildly retarded may learn of their child's delay late in the preschool years. At this point the parents must relinquish the goals and fantasies they were attaching to a healthier child and usually reduce their set of expectations. The parents have few guides to this change and the transition is not easy.

Poznanski described in detail unexpressed negative feelings and the rationale for overprotective behaviors on the part of parents of handicapped children. However, there was no reference to procedures to change the parents attitudes or behaviors.

The extent of the impact of the influence of the parents on their handicapped children is not yet definitive. Reports such as Buda (1972) suggest that the maternal-child relationship not only affects the child's development, but may even affect aspects of the physical development such as muscle tone.

Efficient as well as effective treatment is an ultimate goal for clinicians. The literature suggests group process as an approach to economize professionals' time and enhance the rapport between mothers and their children.

Mash and Terdal (1973) demonstrated with five groups of mothers how to utilize behavior modification principles. The purpose of the modification was to generate effective play behavior between mothers and their mentally retarded children. One emphasis of the study was to evaluate the parent training program in terms of parent-child behavior as a unit in free play experiences. The goals of the five play sessions were to assist the parents in providing an atmosphere for the child to express himself, to increase positive reinforcement value of the parent, and to give the child experience in initiating social interaction, thus sharing in the control of his environment. Videotaped samples were used in teaching the groups of parents. The study revealed positive changes in the mother-child behavioral unit.

Mash, Lazere, Terdal and Garner (1973) evaluated mother-child behaviors in a laboratory setting while the mothers asked the child to perform several tasks. The children had been identified as

behavior problems. The experimental group of four mothers participated in a group focusing on behavioral management skills, in particular compliance to commands. Data suggests that the mothers in training learned effective ways of managing their children in the command situation.

Terdal, Jackson and Garner (1976) compared the interactions of normal and developmentally delayed groups and pointed out that mothers of delayed children may need added support and assistance to manage the behaviors of their children.

Rose (1969) utilized group treatment to increase the parents' repertoire of procedures. In groups ranging in size from three to eight, parents were assisted in finding specific solutions for their children's behaviors. Most parents claimed at termination that they were better able to handle their problems and felt they would be better able to cope with any new problems their children might have.

Carkhuff (1970) described a variety of group training for parents of emotionally disturbed and concluded that "people learn best what they practice most."

Thus there has been widespread recognition of the fact that parenting a handicapped child is a situation with risk for a variety of distortions of parent-child interaction. There has also been increasing utilization of group instruction techniques in providing parents with guidance. However, few if any studies incorporated individual definition of a family's unique interactive style with a program providing for combined individual and group instruction. The present study also differed from most published studies by quantifying a full range sample of before-and-after behaviors, rather than measuring one or several preselected target behaviors.

2. Earlier Research by Present Investigators

Development and refinement of objective methods for the observation and analysis of interactive patterns between young children and their parents had been the focus of a series of projects conducted at the University of Washington. Periodically, as clinical experience increased and as more sophisticated equipment became available, details of the procedure were elaborated, clarified, redefined and sharpened.

In the earliest observations, nonverbal behaviors were coded and recorded by trained observers, while vocalizations were simultaneously recorded (Kogan and Wimberger, 1966). At a later date videorecording eliminated the need for special behavioral coding.

In the initial phases behaviors were meticulously analyzed in four-second units (Wimberger and Kogan, 1968). A more recent modification, developed in the interests of economy and practical applicability, permitted the review of forty-second units of videotaped data (Kogan and Gordon, 1975b).

The earliest empirical approaches were concerned with identifying the generalized conceptual dimensions which most adequately and parsimoniously represented a range of parent-child transactions. As the observational procedures began to serve as a basis for teaching parents to modify their interactions with their children, it became apparent that we needed to deal more directly with specific behaviors rather than generalized clusters or dimensions.

Although the techniques of data processing have undergone change, the theoretical framework for viewing interpersonal transactions has remained the same. The events of social interaction are viewed as reflecting a reciprocal relationship, rather than stressing the unidirectional effect of child on mother or mother on child. It also allows for the delineation of unique communication patterns of individual parent-child pairs.

Three previous projects formed the basis for the study reported here. Between 1969 and 1972, under grant #08815 from NINDS, Kogan and Tyler followed a group of young cerebral palsied children and their mothers with yearly behavioral observations. This study documented the fact that there was a progressive reduction in warm and positive behaviors on the part of the mothers over the period covered by the study (Kogan, Tyler and Turner, 1974). Thus the possible interactive distortions associated with parenting a handicapped child were underscored and documented.

Simultaneously, the first three years of grant #19642 from NIMH (1971-1974) developed the parenting-instruction procedures which were used in the study being reported here. The study analyzed the recorded interpersonal behaviors between mothers and their children, and used those records as the basis for guiding mothers (using a bug-in-the-ear) while they were engaged in eight weekly play sessions with their children. Thirty mothers who had sought professional advice with regard to some aspect of child behavior constituted the subjects of the study. Results highlighted the following findings (Gordon and Kogan, 1975a; Kogan and Gordon, 1975a):

a. All of the mothers who were seeking help exhibited distortions of interactive behaviors, as compared to pilot study subjects. Their children also demonstrated extremes of behavior though not quite to the same extent. Following their instruction sessions, 35% of mothers' behaviors had changed and 15% of child behaviors. Greater amounts of change were documented in mother-child contingency patterns than in single behaviors on the part of either mothers or children singly. Mothers' reports of problem behaviors occurring outside the laboratory were reduced by about 43%. Individuals varied in their indices of change; mothers whose observed behaviors changed most did not have the children who changed most, nor were they members of the dyads in which contingency patterns changed most. Hence our conclusion, in the present study, that no single criterion of change could be adopted. A replication population demonstrated essentially the same results (Kogan, 1978, in press).

b. There was considerable evidence that the process of change was not confined to the space of weeks during which regular instruction sessions took place. Behavior changes took place in some subjects who experienced only baseline observations, with no further contact for an eight week period. Behavior changes also took place in the weeks following instruction,--for children the amount of change was almost as great as when sessions were going on. This led to the decision to distribute instruction sessions over a longer period and to measure behaviors at the end of a year in the present project.

c. Statements made to parents during instruction sessions were recorded verbatim, and were classified according to (1) the type of statement made and (2) the intended behavioral goal for the mother (Gordon and Kogan, 1975b). Almost half (46%) of statements made to mothers involved positive acknowledgement or praise for her having used desired responses; another one-third (34%) indicated to her additional opportunities to use desired responses; 7% involved correction of what she was doing; the remainder were explanations and unclassified comments. The behavioral goals toward which statements were directed were more varied and depended to some extent on the mother's needs. One-third of them focused on expressing warmth and enthusiasm. The remainder were distributed among fostering independence, accepting play at the child's level, showing interest by commenting, participating in play under the child's leadership, anticipating and avoiding conflict, being consistent and honest, giving help appropriately, and being alert to what the child was saying or doing.

The study, Mother-Child Transactions in Cerebral Palsy Therapy, supported by grant #530248 from Maternal and Child Health and Crippled Children's Services, applied the parenting instruction techniques to a population from the same source as the patients who participated in the earlier longitudinal study cited above. The goal of the second study was to see whether some of the persistent and increasing interactive distortions which had been noted earlier could be prevented and/or ameliorated in a comparable population sample.

The results of that study suggested that (1) there was a decrease in negative responses of mothers and children, (2) warmth and positive acceptance by the mother were maintained, and (3) some mother and child behaviors could be viewed as being directly related to the handicap and thus resistant to change (Tyler and Kogan, 1977).

The findings detailed above warranted the expansion of the method to other children whose developmental problems were less specific and less readily identifiable. Parents of children such as these might be experiencing uncertainty and concern over their parenting.

OBJECTIVES

The objectives of the study were detailed as follows:

A. To record and analyze parent-child interactions and to use these data as the basis for guiding parents in systematically modifying their interactions with their child in a series of weekly instruction sessions.

   1. To document immediate and long-term changes in interactive behaviors between parents and their developmentally delayed children who have participated in individual parenting-instruction sessions.

   2. To document immediate and long-term changes in interactive behaviors between parents and their developmentally delayed children who have participated in a combination of group and individual parenting-instruction sessions.

B. To compare the effectiveness of the programs referred to in A1 and A2 above.

C. To examine long-term changes in interactive behaviors between parents and their developmentally delayed children who have not participated in either of the above-mentioned parenting instruction programs. To compare these changes with those documented in the experimental subjects in order to assess whether a parenting-instruction program has any measurable advantage over other regularly available community resources.

D. To identify the range and variety of problems shared by these subjects.

E. To trace changes in the child's behavior outside the observation laboratory, as reported both by parents and by community resource people to whom the child is known. Similarly to trace changes in parent attitudes and values, and in parent comfort or satisfaction with their situation.

F. To test the following hypotheses:

   1. Recorded parent-child behavior interactions before and after parenting-instruction sessions will reveal an increase in positive behaviors on the part of both parent and child; a significant proportion of the recorded changes will persist to the end of a one-year period.

   2. Parent attitudes and values and parent comfort or satisfaction will also change over the one-year period.

   3. Descriptions of child behavior outside the laboratory by both parents and significant others will reflect decreased occurrence of maladaptive behaviors at the end of the program.

4. A combination of individual and group parenting-instruction sessions will result in as many interactive behavior changes as accompany solely individual instruction sessions.

5. Parents who have participated in parenting-instruction sessions will exhibit more marked changes in both interactive behaviors and in attitudes than parents who have not participated in the program.

METHODS

A. Subjects

Subjects were 60 three, four, and five year old children and one parent. They were referred by professionals or concerned parents. Referring information identified the child as developmentally delayed or mildly to moderately retarded (I.Q.'s between 60 and 90). Referrals came from about a dozen community agencies such as Head Start, Speech and Hearing Clinic, preschools and pediatricians. It is of interest that the project met resistance from referring professionals because of the possibility the referred parent-child would be placed in the Comparison Group.

Table 1

Sex, Age and Socioeconomic Status at Time 1, Initiation of Study

	Totals	Individual Intervention N = 20	Individual Plus Group Intervention N = 20	Comparison Group N = 20
Males	38	11	14	13
Females	22	9	6	7
	60			
Ages 3 years	17	8	6	3
4 years	29	8	11	10
5 years	14	4	3	7
	60			
Socioeconomic Status (Hollingshead)				
Class (1 + 2)	19	7	7	5
Class (3)	18	9	5	4
Class (4 + 5)	23	4	8	11
	60			

The sex, age and socioeconomic status were not matched; however, by the chi square test their distributions are not significantly different from chance distributions.

The 60 parent-child pairs were assigned (randomly when practical) to one of three groups (for time schedule see Table 2):

Group I - 20 subjects experienced only individual parenting instruction.

Group II - 20 subjects experienced a combination of individual parenting instruction and group instruction (time approximately equalled Group I).

Group III - 20 subjects participated in behavior observations at two points in time, but did not experience specific parent-instruction sessions. They are identified as the Comparison Group. When interested, these subjects were referred to other resources.

Two fathers were the "subjects" in Group I and took the instructional sessions. The two wives attended most of the sessions. Fathers of other subjects were invited and attended many of the sessions, watching the instructional session with mother-child, sharing weekly discussions and group sessions and reviewing videotaped samples at appropriate intervals.

A few of the parent-subjects in each of the groups were single parents.

B. Assessments

The primary focus of this study was on the observed parent-child behaviors. The Time Schedule (below) provides details of the experimental design. Procedural particulars about observational data can be found in the appropriate section under Results. Other assessments were used in an attempt to measure behavioral and/or attitudinal factors which were possibly related. Information on parent attitudes and perceptions of the child and social interaction descriptions by others were gathered in forms which were filled out at the time of initial and final videotaped observations. The parents filled out the following forms: Washington Symptom Checklist, Maryland Parent Attitude Survey, Minnesota Child Development Inventory, and Parent Questionnaire. In addition, a teacher or other knowledgeable person from the child's social environment described the child's typical responses in a social situation. Each of these assessments is described more completely in the Results section.

Table 2

Time Schedule

	Group I	Group II	Group III
Weeks 1 and 2	Baseline: 30 minute video parent/child play Discussion: parent/staff Forms filled out	Baseline: 30 minute video parent/child play Discussion: parent/staff Forms filled out	Baseline: 30 minute video parent/child play Forms filled out
Week 3	View video samples: parents/staff Specific suggestions: staff/parent Instruction: 30 minute "bug-in-the-ear" parent/child	View video samples: parents/staff Specific suggestions: staff/parent Instruction: 30 minute "bug-in-the-ear" parent/child	View videotapes: parent (optional)
Weeks 4-7	Weekly instruction: "bug-in-the-ear" parent/child Discussion: parent/staff	Weekly instruction: small group of parents; discussion and specific instruction using videotaped samples covering paying attention to child, setting rules, frustration, pacing	
Week 8	Instruction: 30 minute "bug-in-the-ear" parent/child	Instruction: 30 minute "bug-in-the-ear" parent/child	
Weeks 9 and 10	Recorded observation: 30 minute video	Recorded observation: 30 minute video	
Week 11	View video samples: parent/staff	View video samples: parent/staff	

Table 2 (Continued)

Time Schedule

	Group I	Group II	Group III
Weeks 22 and 23 (3 months after week 9)	Instruction: 30 minute "bug-in-the-ear" parent/child Discussion: parent/staff	Instruction: 30 minute "bug-in-the-ear" parent/child Discussion: parent/staff	
Weeks 50 and 51 (1 year from start)	Recorded observation: 30 minute video Discussion: parent/staff Forms filled out	Recorded observation: 30 minute video Discussion: parent/staff Forms filled out	Recorded observation: 30 minute video Forms filled out
Week 52 (optional)	View video samples: staff/parents	View video samples: staff/parents	View videotapes: parent

C. Parenting-Instruction

The methods refined in previous studies were modified in several minor respects in this project. The innovations introduced were based primarily on past clinical experience. Reduction of the initial series of instruction sessions from eight to six was based on our observation that most parents had mastered basic response-techniques by that time. Deferring two sessions until three months later was also based on our experience that some parents began to be less conscientious about paying regular positive attention to their children, and the children began to display problem behaviors again, when there had been an interval of several months since their weekly instruction sessions had ended.

Specific suggestions for individual parent goals were derived from analysis of initial videotaped observations. Details of the tape assessment procedures are provided in the data analysis section below, and in the Laboratory Manual for Interpersonal Behavior Constructs. Suggestions were made to parents on the combined basis of (1) extreme occurrences of interactive behaviors (by comparison with frequencies exhibited by pilot study non-clinic comparison dyads), (2) unusual parent-child interaction contingency patterns (based on clinical experience), and (3) the particular behaviors over which parents were concerned and the contexts in which they occurred.

Prior to the first instruction session, selected excerpts from the baseline tapes were reviewed with the parent. Tape samples identified both effective and ineffective responses. They illustrated behaviors which might be modified advantageously, or for which an alternative behavior might be substituted. Effective behaviors whose frequency could be increased were also identified. Two or three specific recommendations were provided to the parent in written form.

Individual parenting instruction sessions were carried on in a small playroom equipped with a wireless "bug-in-the-ear." The staff, observing through a one-way mirror from an adjacent room could speak to the parent over a microphone. While the parent and child played together in a half-hour session, an observer acknowledged when the parent made desired responses, suggested additional opportunities to use recommended behaviors, and modeled alternatives when behaviors occurred which had been agreed should be discouraged.

Each parenting instruction series was conducted by a team of two staff members who met with the parents jointly, instructed them over the microphone on alternate occasions, and together planned strategies with the mother for implementing and rehearsing the desired behavior changes.

Parents were asked to play with their child in a 15-minute daily play session at home to practice the two or three specific recommended behaviors. At subsequent weekly meetings these home play sessions were discussed.

Group I subjects experienced six weekly individual instruction sessions as detailed above, followed by Time 2 behavior observations. Three months after their Time 2 observations, they received two more individual parenting-instruction sessions re-emphasizing the same suggestions drawn up initially, but also providing opportunity for counseling and/or rehearsing behaviors relevant to new or altered problems.

Group II subjects experienced one individual parenting-instruction session, followed by four group-instruction sessions (to be detailed below), followed by one additional individual session. These six instruction sessions were followed by their Time 2 observations, and by two more individual instruction sessions three months later, as was described for Group I.

The substitution of group discussion-instruction sessions for half of the individually monitored play sessions was based on a practical desire to achieve greater economy and to pave the way for being able to help greater numbers of families.

Group instruction sessions were conducted with parents from three to five families, insofar as scheduling problems permitted. The parents met together with two staff members in four weekly sessions, each of 1-1/2 hours duration. Together they viewed videotaped samples of other parents and children interacting together, which created an opportunity for identifying typical interaction situations and their allied problems, and for viewing and discussing effective and ineffective ways of responding to various child behaviors. Behavior sample tapes illustrated situations which were presumed to be relevant to the parents' needs and concerns and were organized around the following topics: offering the child appropriate attention, setting rules for the child, handling the child's frustrations, following the child's pace. In this group setting, parents had an opportunity to share experiences in handling common problems and concerns. There was also time within each group meeting to discuss briefly how their individual daily play sessions with their own child were going.

These group meetings were not intended to constitute group therapy or treatment of parents' intrapersonal problems. They were structured to focus on teaching about child behaviors and appropriate constructive ways of responding to them.

RESULTS 1: OBSERVATIONAL DATA

A. Background

The evolution of procedures for recording behavioral observations and for analyzing them has been described in the introduction to this report.

B. Procedure

At each of the time points specified in the experimental design two half-hour play sessions were videotaped, usually a week apart. The same toys were provided in all sessions, and were brought into the playroom on a fixed schedule which subdivided the half-hour into one six-minute period followed by two twelve-minute sections. The playroom was a small (approximately 8' x 12') room furnished only with a table and two chairs, and equipped with a one-way mirror and microphone. The videocamera was in the adjacent room and recording was done through the mirror. Four-second time unit markers were superimposed on the tape while the observation was being recorded.

Experimental subjects (Groups I and II) were observed in the two weeks preceding and the two weeks following a series of six weekly instruction/intervention sessions. These behavior observations will be identified as Time 1 (before instruction) and Time 2 (following instruction). The experimental subjects were also observed in two additional sessions a year after their initial contact, Time 3. Comparison subjects (Group III) were observed in two video recorded play sessions at their first two contacts (Time 1) and again a year later (Time 3).

Videotapes were analyzed in 40-second time units according to the Interpersonal Behavior Constructs system. One-sixth of all behavioral data were analyzed independently by a second observer; five observers maintained 85-90% agreement in ongoing reliability measures throughout the study.

The hypotheses to be tested were:

1. That recorded parent-child behavior interactions before and after parenting-instruction sessions would reveal an increase in positive behaviors on the part of both parent and child; and, that a significant proportion of the recorded changes would persist to the end of a one-year period.

2. That a combination of individual and group parenting-instruction sessions would result in as many interactive behavior changes as would accompany solely individual instruction sessions.

3. That parents and children who participated in parenting-instruction sessions would exhibit more marked changes in interactive behaviors than parents and children who had not participated in the program.

C. Results

The Interpersonal Behavior Constructs (Kogan and Gordon, 1975b) constitute a checklist of behavior transactions which are assessed for their occurrence or non-occurrence in each forty-second time unit. There are 22 items altogether. Seven of them describe behaviors which characterize the majority of a given time unit; the remaining fifteen refer to momentary occurrences. With the exception of two items (WORKING TOGETHER and SHARED CONVERSATION) each item may be checked for parent and/or child. The data which were examined in the major portion of this study were the total frequencies of the separate items in the two half-hour observations at each of the designated time points. Frequencies were also summed to yield five additive summary scores for each parent and child for subsections of the checklist, indicated below by the headings POSITIVE AFFECT, NEGATIVE AFFECT, NON-ACCEPTANCE, CONTROL, and SUBMISSIVENESS. The items whose frequencies were analyzed were:

WATCHES
DOES OWN THING
WORKING TOGETHER

QUIET
COMMENTS
SHARED CONVERSATION

LEAD TAKING

POSITIVE AFFECT
SMILES, ENTHUSIASM, ETC.
PRAISE
PHYSICAL WARMTH

NEGATIVE AFFECT
NEGATIVE VOICE, POUT, FROWN, ETC.
MIXED MESSAGE AFFECT
PHYSICAL HOSTILITY

NON-ACCEPTANCE
FRUSTRATION
IGNORES
NEGATIVE CONTENT

CONTROL
PHYSICAL INTRUSION
CONTROL AND DIRECT
COMPETE

SUBMISSIVENESS
SEEKS APPROVAL, GUIDANCE, ETC.
ACTIVELY FOLLOWS
MIXED STATUS

Past research utilizing the behavioral assessment procedures employed in this study has given priority to the clinical importance of the unique and individual interaction patterns of each parent-child dyad. In the present report, for the first time in this series of studies, the effects of treatment on measured behaviors are assessed by means of group results rather than individual dyad data. These results have been expressed in terms of the frequency of occurrence of each of the separate behavioral items of the Interpersonal Behavior Constructs and of five additive summary scores. Results are detailed in Section 1 below.

In addition to the absolute frequencies of behaviors, it seemed important to tabulate and examine the individual dyadic context in which behaviors systematically occurred. The purpose of this examination was to note whether treatment experiences had any orderly effect on particular behavioral contingencies between parent and child, or on the overall extent to which the behaviors of the two participants were patterned to each other. This material is reported in Section 2 below.

1. Frequencies of Behaviors

a. Another study, as yet unpublished, has provided normative behavioral data on 96 3-, 4-, and 5-year-old non-clinic and non-problem children, evenly divided for age, sex and social class. The initial observational records of the 60 developmentally delayed children and their mothers observed in this study were compared with these normative data, and note was made of frequency scores falling more than one standard deviation above or below the mean of the normative group; note was also made of frequency scores which were totally above or below the range of the normative group. Listed below are the single behavioral items and additive summary scores on which 25% or more of the delayed subjects or their parents scored lower or higher than the middle two-thirds of the normative subjects; 16% occurrence would be expected in these ranges.

Child Single Behaviors	More than 1 S.D. above mean	More than 1 S.D. below mean
Smile		65% (18% below range)
Negative voice	45% (15% above range)	
Ignore	60% (13% above range)	
Control and direct		35%

Mother Single Behaviors	More than 1 S.D. above mean	More than 1 S.D. below mean
Comment	35% (7% above range)	
Lead	32% (5% above range)	28%
Smile		58% (20% below range)
Mixed message affect	27% (2% above range)	
Control and direct	30% (2% above range)	
Child Additive Summary Scores		
Positive affect		68% (20% below range)
Negative affect	55% (18% above range)	
Non-acceptance	40% (3% above range	
Contr.	10%	28%
Mother Additive Summary Scores		
Positive affect		43% (5% below range)
Negative affect	40% (12% above range)	

These figures suggest that, as compared with normally developing children, the developmentally delayed children lacked friendly and happy positive behaviors and were high in negative feelings. They were also resistant and non-compliant to their parent's control (high ignore, high non-acceptance), but they were less likely to take control of the activity themselves.

Their mothers reflected the same imbalance of affective interactions,--high negative and ambiguous affect and low positive expressions. One can only speculate who is responding to whose emotional tone. In addition, mothers held more one-sided conversations than most (there were a number of speech-delayed children in the group). Mothers also took the lead in activities and gave more direct orders than most.

b. The initial two observations of the three groups of subjects were examined by analysis of variance. There were no significant differences between the groups on any of the measures itemized above.

c. Time 2 observations were recorded and analyzed for Group I who had 6 individually monitored play sessions and Group II who had 4 group discussions and 2 individually monitored sessions. There was only one measure on which the groups were different at the end of their instruction sessions; there was a higher incidence of mothers' controlling and directing in Group I than in Group II, according to analysis of variance between the two groups with their Time 1 scores treated as a covariate. The implication of these findings is that the two alternative ways of providing instruction to parents were essentially equivalent.

d. The next analysis compared the behavior changes from before instruction to immediately after instruction in each of the experimental groups, using a paired t-test, with an alpha level of .05. There were 12 mother behaviors (out of 22) in which significant differences were noted. Nine of them indicated that parallel changes were exhibited by both experimental groups as follows: mothers watched more, engaged in separate activity less, took the lead less, smiled and praised more, contradicted and corrected less, gave less orders, intruded physically less, and followed more. In addition, Group I mothers reduced their non-responsive talking; Group II mothers reduced both negative and mixed affect, but these were very low frequency occurrences, and the notation of significance may be an artifact. There were significant changes in all of the summary behavior combinations. Details are provided in Table 1 below.

Changes were also noted in 5 child behaviors, 3 of them appearing in both experimental groups, two more only in Group II. Details can be read from the table.

Discussion of the substantive implications of the behavior changes that were noted will be reserved for the Time 1 to Time 3 changes which represent lasting rather than only immediate results.

Table 1
Paired t-test
Significant Changes Time 1 to Time 2

Single Behaviors	Group I	Group II
Mothers		
1. Watch ↗	$p < .001$	$p = .005$
2. Does own thing ↘	$p = .020$	$p = .006$
3. Comment ↘	$p = .041$	
4. Lead ↘	$p < .001$	$p < .001$
5. Smile, enthusiasm ↗	$p < .001$	$p = .007$
6. Praise ↗	$p < .001$	$p < .001$
*7. Negative voice ↘		$p = .003$
*8. Mixed affect ↘		$p = .015$
9. Negative content ↘	$p < .001$	$p < .001$
10. Physical intrude ↘	$p < .001$	$p < .001$
11. Control and direct ↘	$p < .001$	$p < .001$
12. Actively follow ↗	$p = .003$	$p = .003$
Children		
1. Does own thing ↗	$p = .001$	$p = .015$
2. Quiet ↗		$p = .021$
3. Ignore ↘		$p < .001$
4. Control and direct ↗	$p = .007$	$p = .023$
5. Actively follow ↘	$p < .001$	$p < .001$
Additive Combinations		
Mothers		
13. Positive affect ↗	$p < .001$	$p < .001$
*14. Negative affect ↘		$p = .001$
15. Non-acceptance ↘	$p < .001$	$p < .001$
16. Control ↘	$p < .001$	$p < .001$
17. Submissiveness ↗	$p = .007$	$p = .006$
Children		
6. Control ↗		$p = .043$
7. Submissiveness ↘	$p < .001$	$p < .001$

*The significant change may be an artifact of this item having low frequency occurrence; means were less than 1 on asterisked items.

e. The paired t-test was also used to examine changes over the one-year experimental period in both experimental and comparison groups. The results are detailed in Table 2. Again there were changes in 12 of 22 mother behaviors, 7 of them appearing in both treatment groups, and one of those also appearing in the untreated comparison group. In addition, Group I mothers engaged in independent activity less and became more quiet. Group II mothers reduced their use of negative voice, reduced the amount they sought approval and increased their following of the child's lead; however, 2 of these 3 behaviors were in very low frequency categories. Summary combinations of scores changed significantly in all five areas in Group II, but only in three of them in Group I.

Group III mothers, who received no instruction in this research, exhibited 3 changes in the 22 single behavior measures; only one of these changes, reduction in giving orders, corresponded with the changes in the mothers who participated in instruction sessions.

Child behavior changes numbered 8 out of 22 at the end of the year. Of the six changes which were exhibited by the treatment groups, three were common to both groups, one occurred only in Group I and two occurred only in Group II. Two significant shifts occurred only in comparison children, one of them in a low-frequency item which may make the finding artifactual. Comparison children also exhibited two other shifts, reduction of ignoring and reduction of actively following which also occurred in both treatment groups, a fact which suggests that some changes might be attributable to increased age as well as to having provided parent instruction.

Table 2

Paired t-test
Significant changes Time 1 to Time 3

Single Behaviors	Group I	Group II	Group III
Mothers			
1. Watch ↑	$p = .015$	$p = .001$	
2. Does own thing ↓ ↑	$p = .047$		$p = .043$
3. Quiet ↑	$p = .025$		
4. Lead ↓	$p < .001$	$p < .001$	
5. Smiles, enthusiasm ↑	$p < .001$	$p = .002$	
6. Praise ↑	$p = .001$	$p = .004$	
*7. Negative voice ↓		$p = .001$	
8. Negative content ↓	$p < .001$	$p < .001$	
9. Physical intrude ↓	$p < .001$	$p = .006$	
10. Control and direct ↓	$p < .001$	$p < .001$	$p = .002$
*11. Seeks approval ↓		$p = .034$	$p = .040$
12. Actively follows ↑		$p = .014$	
Children			
*1. Watch ↑			$p = .002$
2. Does own thing ↑		$p = .008$	
3. Quiet ↓			$p = .029$
4. Smiles, enthusiasm ↑	$p = .001$	$p = .002$	
5. Negative voice ↓	$p = .035$		$p = .027$
6. Ignore ↓	$p = .005$	$p = .003$	$p = .004$
7. Control and direct ↑		$p = .025$	
8. Actively follow ↓	$p < .001$	$p < .001$	$p = .005$
Additive Combinations			
Mothers			
13. Positive affect ↑	$p < .001$	$p = .001$	
14. Negative affect ↓		$p = .005$	
15. Non-acceptance ↓	$p < .001$	$p < .001$	
16. Control ↓	$p < .001$	$p < .001$	$p = .007$
17. Submissive ↑		$p = .006$	
Children			
9. Positive affect ↑	$p = .001$	$p = .001$	
10. Negative affect ↓	$p = .023$		$p = .016$
11. Non-acceptance ↓	$p = .033$		
12. Submissiveness ↓	$p < .001$	$p < .001$	$p = .003$

*The significant change may be an artifact of this item having low frequency occurrence; means were less than 1 on asterisked items.

f. Comparison of Groups I, II and III, Time 3. It will be remembered that a one-way anova revealed no differences between the groups in their initial behavior observations. The same assessment tool was applied to their final behavior observations. Results are detailed in Table 3.

Table 3

Time 3 Anova, by Groups

	F Prob.	Scheffe' Multiple Range Test
M watch	p .008	III < I and II
C watch	p .0126	III > II
M do own thing	P < .0001	III > I and II
C do own thing	p .0490	NS* *Duncan III < II
M lead	p .0026	III > II and I
M praise	p .0033	III < II
M negative content	p .0009	III > I and II
M intrude	p .0028	III > II and I
M control & direct	p .0003	III > I and II
C actively follow	p < .0001	III > I and II
M positive affect	p .0060	III < II
M negative affect	p .0405	III > II
M non-acceptance	p .0009	III > I and II
M control	p .0005	III > I and II
C submissive	p .0001	III > I and II

*Despite the F probability less than .05, there were no significant differences between groups on the Scheffe' Multiple Range Test, the more conservative measure, but Groups II and III were significantly different according to the Duncan Multiple Range Test.

Table 3 indicates that treatment groups were clearly different from the comparison group at the end of the program. Differences were evidenced in 7 mother behaviors and 3 child behaviors, and in 5 of the 10 additive combinations. In 5 of the above measures only Group II was significantly different from Group III. In 8 more, Group II differences were just a little greater than Group I. Thus combining group and individual instruction, which was originally intended as an advantage in economy appeared also to constitute an advantage in effectiveness.

g. Comparison of year-long Time 1 - Time 3 changes with immediate Time 1 - Time 2 changes provided information about the lastingness or stability of the altered behaviors. Of the 9 mother behavior changes noted in both treatment groups at Time 2, 7 were also present at Time 3; the other two Time 2 changes each persisted in one of the treatment groups, but not both. The 3 child behavior changes noted immediately after treatment all persisted in Group II, but only one was maintained in Group I. However two more child behavior changes were apparent in both treatment groups by the end of a year,--children were more smiling and enthusiastic and they ignored their mothers less.

2. Parent-Child Behavioral Contingency Patterns

In each two-session set of observational data from each parent-child pair, contingency patterns between individual parent and child behaviors were calculated by Chi-square methods, following the procedures originated by Bobbitt, Gourevitch, et al. (1969). Only patterns which occurred at least five times during the two half-hour sessions were examined; an alpha level of .01 was adopted. A significant contingency pattern indicates that the two behaviors in question occurred together in the same 40-second time unit more often than their single rates of occurrence would lead one to expect by chance. It provides no information about which was antecedent to the other or what other behaviors also occurred in the same time units.

Initial observation records from all 60 parent-child pairs were examined, and each dyad's significant contingency patterns between a mother behavior and a child behavior (or between a joint behavior and a mother or child behavior) were tabulated. Results will be cited separately for each experimental group so that after-treatment results can be compared.

In Group I the number of mother-child patterns per dyad ranged from 3 to 15 with a mean of 5.8; however, the dyad which had 15 patterns was atypical, and the next largest frequency was 9. There were 5 patterns which occurred in more than half of the subject-pairs; the remainder of the patterns each occurred in no more than four dyads.

In Group II the number of mother-child patterns per dyad ranged from 2 to 9, with a mean of 6.0. The same five patterns which had characterized Group I data occurred in half or more of the Group II subject-pairs, the remainder of the patterns each occurred in no more than four dyads.

In Group III the number of mother-child patterns per dyad ranged from 3 to 10, with a mean of 6.05. The same five patterns which had characterized Groups I and II also occurred in half or more of the Group III subject-pairs; as in the other groups, the remainder of the patterns each occurred in no more than four dyads, with the exception of two patterns which occurred in five dyads each.

At the beginning of the study, then, five contingency patterns were common or "popular" patterns: Mother watch with Child does own thing; Mother lead with Child actively follow; Mother smile with Child smile; Mother control and direct with Child actively follow; Child control and direct with Mother actively follow. The remainder of the contingency patterns appeared to be expressions of individual dyad communication styles, and their constellations and contexts differed from one family to another. For example, in some dyads mother's negative content was accompanied by child's negative content, while in other dyads, mother's negative content was more often accompanied by child's actively following, while in still others child's actively following was accompanied by mother's praise rather than her negative content.

Parent-child behavioral contingency patterns were also examined in the post-counselling observations. Group I and Group II subjects each had a mean of 5.2 mother-child patterns, and aside from the above-cited "popular" patterns, no combination occurred in more than four members of a group. The only notable change was that the contingency of Mother lead with Child actively follow now occurred in only one dyad in each group. The other four patterns, Mother watch with Child does own thing, Mother smile with Child smile, Mother control and direct with Child actively follow, and Child control and direct with Mother actively follow, occurred respectively in 39, 27, 27, and 33 of the 40 dyads.

The two experimental groups of subjects each received two additional bug-in-the-ear monitored sessions three months later. Their final behavioral observations were recorded at a point which was one year after the initial observations. Group III dyads, the comparison subjects, also participated in behavior recordings at the end of a year. These final recordings and their analyses are summarized below:

a. The mean number of mother-child contingency patterns was essentially equivalent at all three points in time. They were distributed as follows:

Mean Number of Mother-Child Contingency Patterns

	Time 1	Time 2	Time 3
Group I	5.8	5.2	4.6
Group II	6.0	5.2	4.9
Group III	6.1		6.1

While it might appear as though there was a small but consistent drop in the mean number of patterns in the treatment groups, it was clear that the variability within the groups was much larger than this small mean difference; statistical tests were not done.

b. Four patterns continued over time to characterize the interactions of children and their mothers, and were present in a high proportion of the dyads regardless of the occurrence of behavioral instruction. The patterns were:

Mother watch with Child does own thing
Mother smile with Child smile
Mother control and direct with Child actively follow
Child control and direct with Mother actively follow

These patterns were so prevalent that one must conjecture whether their absence in isolated instances might not have clinical implications.

c. One pattern appeared to reflect direct consequences of behavioral counselling. The combination of Mother lead with Child actively follow occurred in 34 of the 60 dyads before any instruction took place. Following the training sessions it occurred in only one dyad of each of the experimental groups immediately following parent-instruction, and in two out of each group at the end of the year. In the comparison group this pattern occurred in 10 dyads at the beginning and in 11 dyads at the end of the year (not necessarily in the same people). Both Mother lead and Child actively follow were behaviors whose frequencies were reduced in the experimental groups following interventions. However, Child actively follow and Mother control and direct were still one of the frequently occurring patterns. Thus one may ruminate that perhaps one of the effects of the behavioral interventions was to sharpen the communication of the parent-child pair to the point where prompt conformity became specific to the direct command and permitted wider room for child independence in other interactions.

d. On the whole, contingency patterns between parent behaviors and child behaviors appear to be specific to the particular behavior sample. Thus with the exception of the four patterns noted earlier, they differ for different parent-child pairs. They also appear to differ from one time to another. Omitting the "popular" patterns from consideration, there were 42 different mother-child patterns recorded in the first observations of the comparison (untreated) subjects. A year later, only 4 of these 42 were noted to occur in the same dyads in which they had been noted earlier.

These facts lead us to the conclusion that even though behavioral contingencies have an important function in the clinical delivery of behavioral counselling to troubled parents, they are not a serviceable research tool for generalizing about the interactive characteristics of groups of people, nor of single dyads over long periods of time.

3. Summary of Results

Because the observational data were complex and thus involved multiple facets of analysis, an attempt will be made to summarize the major findings of this detailed report of results.

a. The interactions of the developmentally delayed children and their mothers differed from those observed in a normative sample of non-delayed children in two important dimensions. The interactions between parent and child were colored by greater amounts of negative affect and smaller amounts of positive affect on the part of both participants. In the control dimension, mothers tended to be more controlling than comparison mothers; while the children exhibited less direct control behaviors than most, they were more resistant and contrary to their mothers' control than the normative sample.

b. A number of significant behavioral changes were demonstrated in both mothers and children following either one of two instructional programs. Most of the changes were maintained in the one year follow-up observations.

c. There appeared to be consistently more measurable changes in mother behaviors than in child behaviors in both immediate and follow-up observations.

d. Subjects were randomly assigned to one of three groups. There were no significant differences in the initial behavioral records of the three groups. At the end of a year the behavioral records of the untreated comparison group were clearly different from those of the treated subjects in 10 of the single behavior items and in 5 of the additive summary scores. Mothers who had participated in the program watched and praised their children more; they took the lead less, engaged in separate activity less, intruded less, contradicted and corrected less, and gave less orders. They were higher in positive affect and lower in negative affect than the untreated mothers. They exhibited less non-acceptance and less control.

e. The combined individual and group instruction program consistently appeared to be slightly more effective than the purely individual-instruction program.

D. Discussion

It is of interest that so many significant and lasting behavioral changes occurred with only eight intervention sessions. It suggests that the combination of identifying specific behaviors on the videotape, showing samples of tapes to the parents, including both parents when possible, intervening directly to the parent in the play session with the "bug-in-the-ear," and teaching Group II with samples of videotapes, all led to an intensive and seemingly dynamic intervention/instruction process. The results identify changes in behaviors in both parents and children of the two experimental groups, though on the whole parent changes were more numerous than child changes. The changes were present nine months after the intensive portion of the intervention, suggesting the behavioral changes were not merely role modeling effects of the instructional setting, but rather behavioral changes which were truly integrated into the interaction qualities of the parent and child. There were a few behavioral changes in the comparison group as well as the experimental groups and one would have to assume these were the effect of other interventions or changes which occurred spontaneously because of the child's increase in age or other factors.

When one looks closely at the data, there is a definite direction to the effects of the intervention; this was obviously not the kind of therapy where the parents were "taught" to "teach" their children. Instead the parents were guided to watch their children, listen to what they said, and to comment in simple words about what the children were doing. The parents were encouraged to focus on the children, but without placing

control or pressure on the children to perform. This kind of parent behavior seems to reduce the stress for the child. It also assists the parent to accept the child and whatever the performance is, thereby reducing the stress for the parent.

Many of the parents in the experimental groups were instructed to watch their children as they played, as a strategy for reducing their imposing their own adult ideas and standards. Therefore, it is not surprising the Mother watch behaviors increased after intervention; and as their mothers watched, the children played more. The increase in Child does own thing could be interpreted as an indication of longer or better attending skills. This was seen in Table 1 in which immediate changes were listed. However, Child does own thing was significantly higher only for Group II at Time 3, suggesting there was some slippage, or the behaviors for the Group I children were not firmly enough established after the eight intervention sessions to be maintained for a long period of time. It is of interest to note that in the previous research with cerebral palsied children, this pattern also occurred. In that study, Child does own thing changed significantly for more than half the children immediately after intervention, but the change was significant for less than half the children when the year-end tapes were analyzed.

We observed that as the parent watches the child, and talks to her/him about what she/he is doing, the child can develop a more positive attitude about her/his play and truly enjoy the interaction with the toys, even if it be on a very simple level. As the children feel better about the toys, they play for longer and longer periods of time. With the absence of parents' attempting to teach and a decrease of imposing their own ideas, the child then has the time and space to develop imagination and be more creative with the toys. We did not measure the children's creative use of the toys directly, but the observers had a definite impression that this happened in a dramatic way with some of the children during the intervention sessions. What was measured and changed was the increase in Child does own thing, increase in Positive affect, and decrease in Negative affect.

It is of interest that the comparison children (Group III) demonstrated an increase in their Watching behaviors, while their parents demonstrated an increase in Does own thing. Does this suggest that as their age advanced, the children sat back more to watch their parents perform?

When the developmentally delayed children and parents were compared to the normal population, there were significant differences. The delayed children demonstrated more negative affect and more non-acceptance behaviors and at the same time displayed less positive affect and less numerous controlling behaviors. The mothers of these delayed children also displayed more negative affect, more lead and control behaviors and less positive affect. The reciprocal nature of dyadic interaction appears to be demonstrated by the similarity of negative and positive affect qualities and the counterbalanced complementarity of these control behaviors. As many of the parents learned to watch their children, it was apparent there was less time for them to control the child's activity; and this seemed to lead to less negative content for both the parent and the child.

The experimenters attempted to keep the content of material and the amount of time similar between Groups I and Group II. However, the content of material for the instructional group sessions did necessitate focusing directly on certain parent interaction behaviors. One instructional session of Group I was devoted to assisting the parents learn to set rules for their children. Frequently there was not the occasion during the play-observation sessions which necessitated use of these "rule setting" skills, but many parents came to the clinic with questions about behavior control. Therefore, the staff developed teaching tapes on this subject and Group II participants were instructed with these tapes and in addition had the opportunity to share with other parents ideas concerning establishing and being consistent with rules and limits for their child. The changes in these specific behaviors might not be seen in the videotaped play sessions, but one does have to question the overall effect this type of instruction has on parents. Could the maintenance of more behavioral changes in Group II over time have been affected by the learning to set rules and other specific teaching discussions provided by the four instructional sessions?

Some of the parents reported that as they (the parents) decreased the amount of controlling and leading the child, the child spontaneously became more compliant in the home situation. If this is so, then the increase in positive affect for both parent and child were a genuine reflection of the more positive interaction. One does need to question the tolerance each child has to responding positively to commands of the supervising parent.

There was no question but that demonstrable behavior changes were reflected in our laboratory behavior observations during and following the series of parent-instruction sessions. Since this study was partially conceived of as a project in applied clinical research, the importance of the demonstrated results rests on the extent to which they relate to two other avenues of inquiry. One avenue which this project is prepared to explore is the correspondence between observed behaviors and reported perceptions of parents and others in a wider variety of situations. The other area of inquiry is the consideration of the current findings and their implications in the perspective of comparable observations with other populations,--handicapped children, children with behavior problems, and non-clinic comparison samples. Both of these areas will be discussed in the final Discussion section of this report.

RESULTS 2: WASHINGTON SYMPTOM CHECKLIST

A. Background

Behavior rating scales have had wide use both as diagnostic tools and as classification instruments for identifying psychological disorders in children. Lists of traits or behaviors have been compiled and employed in the assessment of groups of both clinic and non-clinic children; assessments have more often been made by teachers, but have also been made by parents. An early utilization was demonstrated by Hewitt and Jenkins (1946) who examined case histories and isolated a list of behavioral traits commonly used to describe children referred to a child guidance clinic. They identified three behavioral syndromes from clusters of the behavior traits, and labeled them as characterizing the unsocialized aggressive, the socialized delinquent, and the overinhibited child.

Since that time a number of investigators have explored the use of behavior rating scales as a means of isolating behavioral syndromes. It is impressive that despite the increased sophistication of sampling and factor analytic techniques, the three classifications derived by Hewitt and Jenkins and the two later ones isolated by Peterson (1961), labeled "Conduct Problem" and "Personality Problem," frequently recur and/or overlap syndromes identified by other investigators (Peterson, 1965; Quay and Quay, 1965; Lessing, Beiser, et al., 1973; Ross, Lacey, and Parton, 1965; Miller, Hampe, Barrett and Noble, 1971; Behar and Stringfield, 1974; and Wimberger and Gregory, 1968).

Generally behavior checklists are simple in design and are easily used in the study of large groups of children. Several investigators have employed them as a means of identifying deviant children by standardizing their scales on normative populations (Miller, Hampe, et al., 1971; Behar and Stringfield, 1974; Becker, 1960; Kolvin, Wolff, Barber, et al., 1975; Connors, 1970; and Peterson, 1961). While these studies varied in the age of the population studied and the instruments employed, there is general agreement that a non-clinic population displays a variety of what are generally considered to be deviant behaviors. "Thus, most deviant children differ from their normal peers in the number instead of the kind of deviant behaviors," Quay and Werry, p. 20. The present investigators were interested in examining differences in total scores and in the frequency of individual item endorsements.

B. Procedure

The Washington Symptom Checklist is a modified form of the checklist described by Wimberger and Gregory in 1968. The form consists of 63 items which cover a variety of child behaviors. Parents were instructed to rate their child on each behavior by checking "more often than most," "about the same as most," or "less than most," with children of the same age as their child being the reference point. Both parents completed the checklist at the beginning of the study and again at the end of the study, a year later. Sixty mothers and 44 fathers completed the checklist at the beginning (Time 1) and 55 mothers and 32 fathers completed it a year later (Time 3).

The majority of behaviors were defined as deviant if they were checked as occurring "more than most." Three items were arranged in a reversed format so that "less than most" was the deviant response, and two more were considered deviant if they were checked as being either more or less than most. Scoring was modified to accommodate these exceptions, and in this report "more than most" can be considered synonymous with deviancy.

Analysis was made of the total number of behaviors reported as belonging in the "more than," "same as," and "less than" categories, and of the specific items marked as being deviant. Results were tabulated for the total population and for the three separate groups at Time 1 and Time 3. The data were also compared to those from comparable populations of 30 behavior problem children and 49 non-clinic families.

Analysis was also made of the frequency of endorsement of each separate item before and after treatment in order to determine whether certain perceived behaviors were more amenable to change than others, whether parenting instruction was more effective in reducing some problems than others, and whether type of parenting instruction was a significant factor in parents' perceptions of problem behaviors.

C. Results

1. Total number of deviant behaviors reported

The hypothesis being tested was that parents' reports of child behavior outside the laboratory would reflect decreased occurrence of maladaptive (deviant) behaviors at the end of the program for Group I and Group II subjects as compared with Group III subjects. An analysis of variance of the total number of deviant behaviors reported by mothers compared the three groups of subjects at two points in time.

The mean numbers of deviant behaviors reported by the groups were as follows:

	Group I	Group II	Group III
Time 1	13.8	11.8	9.7
Time 3	10.3	8.1	8.4

There were no significant differences between treated and untreated subjects either at the beginning or end of the study, and there were no significant differences between before and after reports for any of the groups.

Fathers' reports were very similar to mothers', and there were no significant differences between mother and father data. There was an absence of differences between groups and between

before and after results within any group, similar to the findings for mothers. The mean numbers of deviant behaviors reported by groups of fathers were:

	Group I	Group II	Group III
Time 1	10.2	10.0	10.8
Time 3	9.5	7.6	7.6

2. Responses to single items

The item-by-item analysis of change was difficult to measure and to interpret. On the whole these parents of developmentally delayed children expressed their concerns about a wide variety of behaviors. While almost half of the items were more frequently reported as being deviant by parents of delayed children than is true for a non-clinic population, in very few instances were the same items singled out by a majority of the group with any unanimity. Thus measures which compared responses to single items before and after treatment were not generalizable to the group. Only 9 of the 63 behaviors were viewed as being areas of deviance by as many as one-third or more of the parents at the beginning of the study, and only two items were marked by more than half of them. Thus, for any single item the number of deviant responses available for statistical analysis was so small that probability theory necessarily attributed the observed changes to chance.

In each of the three experimental groups the responses to four checklist items suggested that significant change had taken place between the beginning and the end of the study. However this number of significant findings is barely above the chance level (6%); there was no overlap between the items noted in the three population subsamples, and their content had no apparent logical cohesiveness. The results are therefore best viewed as being random events.

3. Comparison of developmentally delayed population with other population samples.

The results described above were compared with the findings of two other studies. Responses to the same instrument were available for the mothers of a group of 30 children (matched for sex and age with the present subjects) referred because of behavior problems, and the mothers of 49 non-clinic children between the ages of 3 and 6. The mean number of responses falling into each response category for the three population samples was significantly different ($p < .0005$). Their response patterns are indicated below:

Mean number of responses in each category*

	More	Same	Less
Non-clinic	4.76	30.00	26.35
Developmentally Delayed	11.83	31.92	17.50
Behavior Problem	17.17	30.10	11.30

*Mean number of items omitted not tabulated; entries across rows do not therefore total 63.

Mothers of developmentally delayed children reported more deviant behaviors than did mothers of non-clinic children, but less deviant behaviors than did mothers of children with behavior problems.

An item-by-item comparison was made between the responses of the mothers of the developmentally delayed population and the non-clinic comparison subjects. For each item a one-way analysis of variance was performed. Significant differences were found between the two populations on 29 of the 63 items. Of these, the only behavior reported more frequently by the comparison mothers was sucks thumb; all other items were reported more often by mothers of developmentally delayed than by comparison mothers. The frequency of endorsement of each of the 29 items in the two groups, and the significance of the difference between them, is tabulated on the following page.

Proportion of Mothers Reporting Single Behaviors as Deviant

		Delayed	Non-clinic	Significance of Difference
1.	Has temper tantrums	29.8 %	0 %	$p < .0001$
2.	Forgets things	13.8	2.1	$p < .0007$
3.	Disobeys father	13.7	2.2	$p < .0248$
4.	Is inattentive in school	26.0	4.9	$p < .0007$
5.	Has difficulty finishing a task he/she starts	33.9	4.1	$p < .0002$
6.	Angers easily	40.7	12.2	$p < .0013$
7.	Has difficulties with teachers	6.7	0	$p < .0005$
8.	Takes things that are not his/hers	11.7	0	$p < .0095$
9.	Shows immature behavior	30.5	0	$p < .000$
10.	Is a discipline problem at school	19.6	4.8	$p < .0179$
11.	Is self-sufficient	30.5	8.3	$p < .0001$
12.	Prefers to play alone	20.3	0	$p < .0028$
13.	Is unpopular with other children	12.1	0	$p < .0030$
14.	Lacks self-confidence	22.4	6.3	$p < .0006$
15.	Prefers to play with children not his/her own age	15.5	10.2	$p < .0341$
16.	Cries easily	31.7	10.2	$p < .0172$
17.	Refuses parental instructions	23.7	4.1	$p < .0166$
18.	Gets along poorly with children of opposite sex	6.8	2.1	$p < .0005$
19.	Is irritable	23.3	2.0	$p < .0014$
20.	Has speech difficulty	55.9	4.2	$p < .0000$
21.	Is resentful of discipline	21.7	4.1	$p < .0026$
22.	Is fearful	15.3	2.0	$p < .0454$
23.	Is stubborn	54.2	26.5	$p < .0102$
24.	Is nervous and jumpy	18.6	4.1	$p < .0243$
25.	Is destructive	13.8	0	$p < .0199$
26.	Is afraid to defend himself/herself	19.0	2.0	$p < .0151$
27.	Has physical complaints	15.0	10.2	$p < .0257$
28.	Sucks thumb	22.4	18.8	$p < .0271$
29.	Bites nails	14.3	0	$p < .0118$

D. Discussion

The results reported above failed to confirm the original hypothesis of the study. The two treatment groups of parents of developmentally delayed children did not differ prior to or after intervention; nor did they differ from the control group at either time. Intervention did not make a significant difference in parents' report of deviant behaviors for the treatment groups. This is in contrast to a previous study involving 43 non-handicapped behavior problem children which also utilized the Washington Symptom Checklist. In that study the mean number of pre-intervention deviant behaviors was 18.7 while post-intervention deviant behaviors were reduced to 10.8 (Kogan, in press).

Significant differences were noted between the developmentally delayed population, a population of non-handicapped behavior problem children and a non-clinic population. It is interesting that the parents of developmentally delayed children do not identify as many problems as parents whose children are behaviorally deviant but do perceive more problems than a non-clinic population. They appear to represent a middle ground between two extremes.

The developmentally delayed children were seen by their parents as being different from the non-clinic population on almost half of the items on the checklist. Clinicians justifiably conclude that assistance in child management and support for parents of these delayed children is useful and warranted. The results suggest that parents of delayed children are aware of many of the differences and problems presented by the handicap. Behavioral intervention may make the parent more competent, self-assured, and more positive toward the child. However, it cannot change the fact that these children are still delayed and therefore continue to exhibit behaviors which differentiate them from a non-clinic group.

Whereas the earlier results with behavior problem children led the investigators to anticipate reduction in numbers of deviant behaviors reported, that hypothesis was clearly faulty. Deviant behaviors which are rooted in behavioral disturbances are more likely to be amenable to behavioral intervention than behavioral deviances which stem from developmental delays. These kinds of statements are based on comparison of delayed children with normative standards and expectations. The lack of demonstrated change in that comparison is in no way contradictory to the demonstrated child behavior changes observed and measured in recorded interactions with their mothers. In the latter instance the delayed children are being compared with their own pretreatment standards rather than with normative expectations, and definite changes, within the limits of their capacity levels, can be demonstrated. In specific individual instances a delayed child may also have behavior problems which are amenable to behavioral intervention, but these specific individual changes will not be discernible in group research results.

RESULTS 3: MINNESOTA CHILD DEVELOPMENT INVENTORY

A. Background

The Minnesota Child Development Inventory was devised to furnish clinicians with a means of evaluating preschool children's development. The inventory is appropriate for children one to six years of age. It consists of a booklet containing 320 statements that describe the behaviors of children. On an answer sheet the parent indicates whether the child has ever displayed the behavior in question by marking "yes" or "no." The instrument was standardized on white, suburban mothers. "The norms represent a standard of development that is achievable under relatively favorable environmental circumstances," (MCDI Manual). The scores are summarized graphically on the "MCDI Profile" which compares each child's development with the norms for children of his/her age and sex as well as with norms for children of younger ages.

The inventory items have been grouped into seven specific areas of development: gross motor, fine motor, expressive language, comprehension-conceptual, situational comprehension, self help and personal social. The eighth category, general development scale, includes items from each of the other seven scales and serves as an overall index of development. Two publications confirm the use of the inventory in this way. Colligan (1977) has reported a correlation of .92 between MCDI General Development scores and mental age scores on three psychometric instruments in a Mayo Clinic population of 132 subjects. Ireton, Thwing, and Currier (1977) compared MCDI results on 109 children with the results of psychological evaluations and concluded that the profile as a whole corresponded well with the formal evaluation.

B. Procedure

The Minnesota Child Development Inventory was used in this research to identify the functional age of the children when they entered the project. In addition, the parents filled out the Inventory at Time 3, a year after they had initially completed it, so that possible changes in the child's rate of development could be identified. Forms for both mother and father were provided at both times; the parents were asked to fill them out at home separately, before discussing them with each other. The forms were returned at their next weekly appointment.

C. Results

The MCDI General Development scale was used in the present study to summarize the population at the beginning of the study. The childrens' developmental scores, as identified by the mothers, suggested that the subjects represented the developmentally delayed population which the study intended to assess. The results are detailed below.

General Development (Mother's Reports)
Time 1 (N = 59)

31% or more below age	16%
21 - 30% below age	24%
1 - 20% below age	41%
At age or above	19%

Moreover there were only two of the 59 mothers who did not report their child as being below age standard in at least one of the seven facets of development which the inventory assesses.

Mothers' scores on the general development scale for each of the groups at Time 1 was compared to mothers' scores at Time 3. Although there was some variations in ratings across all three groups, there was no systematic, significant change in developmental categories between Time 1 and Time 3.

Fathers' scores at Time 1 were also compared to Time 3 ratings, and exhibited no significant changes.

However when before and after scores on the seven separate subscales were examined, there were three scales whose results suggested that the behavioral interventions may have been accompanied by specific developmental changes rather than general ones. The table, below, records the percent of mother responses in each treatment group which attributed average or better developmental skills to the child being described. Scores on the gross and fine motor skill scales were not reproduced in this table because logically the issue of behavior-related increase seemed less relevant.

Percent of "Average or Better" Ratings

		Time 1	Time 2	Increase
Expressive Language	Group I	37%	57%	+20%
	Group II	20%	33%	+13%
	Group III	25%	28%	+ 3%
Comprehension Conceptual	Group I	42%	50%	+ 8%
	Group II	25%	47%	+22%
	Group III	20%	17%	- 3%
Situation Comprehension	Group I	47%	64%	+17%
	Group II	35%	47%	+12%
	Group III	45%	44%	- 1%
Self Help	Group I	47%	71%	+24%
	Group II	35%	47%	+12%
	Group III	45%	61%	+16%
Personal Social	Group I	26%	43%	+17%
	Group II	35%	33%	- 2%
	Group III	45%	28%	+ 3%

These figures suggest that without behavioral intervention there is likely to be little or no change in the amount of "average" performance reported; on 4 of the 5 scales examined here, the comparison (non-treatment) mothers changed by 3% or less in classifying their children at an average standard. In expressive language, conceptual comprehension, and situation comprehension the two treatment groups exhibited an increase in the proportion of children classified in the average range. In personal-social skills only Group I mothers exhibited an increase. In self-help skills all groups increased considerably, and one is forced to conclude that behavioral intervention made less difference than the intervention of a year's time.

D. Discussion

The data derived from parents' responses to the developmental inventory confirm several aspects of this study. Parents were apparently perceiving their children realistically and were not denying their delays. There were no systematic differences between mothers' and fathers' perceptions of their developmentally delayed children. Developmental delay was a fact and did not diminish in spite of behavioral and interactive changes. There were, however, some trends which suggested that further research might be worthwhile in areas specifically related to the communication aspects of language and concept formation. It is tempting to hypothecate that smoother and more positive interactions, fostering independence, may help to maximize expressive language and social comprehension growth within the limits set by overall developmental delay.

There were, however, several methodological weaknesses in the current study. The instrument chosen for use was a "last resort," as having some definite advantages and fewer disadvantages than other available alternatives. To the investigators' best knowledge it has not had prior use in longitudinal studies. While all of the children in this study fell into the appropriate age-range at the beginning of the study, several of them were 6 to 6-1/2 years old at the end of the experimental year, and were thus above the ceiling of the test. Even more of them were beyond the most effective discriminative ranges of some of the subscales.

In general the Minnesota Child Development Inventory appeared to be a useful screening device in this study, confirming the subject selection procedures employed. The absence of demonstrable changes in overall developmental level in spite of dramatic interactional changes confirmed the fact that parents can be helped to live more comfortably with the problems of parenting a delayed child, but that the fundamental delays and inherent problems cannot be dissipated by behavioral procedures.

RESULTS 4: MARYLAND PARENT ATTITUDE SURVEY

A. Background

Although numerous scales have been designed to measure parents' attitudes toward childrearing, only one has tried to do so with the intention of controlling for the tendency of the subject to answer as he thinks he should rather than how he genuinely feels. The Maryland Parent Attitude Survey (MPAS) developed by Pumroy (1966) was constructed to control for this response bias of social desirability. Because of this refinement, it was selected for use in this study.

Brody (1965) employed two of the four Maryland scales in an observational study of mother-child interaction. She found significant differences between low- and high-attitude groups in the predicted direction when correlating the scores obtained with observed maternal behavior. Even though 7 of the 15 behavioral indices did show a significant relationship with Maryland scores, Brody admits that her findings do not indicate a strong relationship between observed maternal behavior and expressed attitudes.

The childrearing attitudes of parents of children with various handicaps have also generated much research. In a study involving mothers of severely blind, mongoloid, cerebral palsied, and deaf children, Cook (1963) reported that these mothers scored much higher on the Authoritatian-Control scale of the Parental Attitude Research Instrument (PARI) than did mothers of mildly afflicted children with the same handicapping conditions. Wetter (1972) used the Child Behavior Rating Scales and the Mother-Child Relationship Evaluation and found that the attitudes expressed by parents of children with a learning disorder showed greater overindulgence and rejection than attitudes of parents in the control group. Using an inventory developed by Oppenheim, Pittfield and Oppenheim (1964) found that mothers of mongoloid children were more detached and stricter than those in a control group and that mothers of psychotic children had more lax and indulgent attitudes.

These studies all indicate that there are differences in attitudes between parents of handicapped and non-handicapped children in a variety of ways.

The purpose of this report is twofold: 1) to compare the childrearing attitudes of parents of children who had been identified as mildly to moderately delayed in some aspect of their development with those of a comparison group of mothers, and 2) to examine the year long attitude stability of parents of the handicapped children whose interactions with their children were modified by the intervention program utilized in this project.

B. Procedure

All subjects were administered the Maryland Parent Attitude Survey (MPAS), which uses a forced-choice format in which 90 pairs of items are matched for social desirability. The survey yields four scale

scores, Disciplinarian, Indulgent, Protective and Rejecting. Only 55 of the 60 mothers and 38 fathers who participated in the present study completed the Maryland Parent Attitude Survey prior to videotaping. The T-scores assigned to all subjects were derived from the data gathered from a normative group of comparison mothers in another study. The development of parent norms, rather than norms based on college students, as reported by Pumroy, has been reported elsewhere (Slough, Kogan, Tyler, 1978).

The comparison data were collected from 167 mothers whose children attended community college cooperative preschools in the Seattle area.

C. Results

When the mean scale scores of the normative comparison mothers were compared with those of the mothers in this study, there was a significantly lower endorsement of rejecting values in the latter group. Although not significant, these mothers also tended to endorse protective attitudes more frequently than the comparison group. Table 1 details these findings.

Table 1

Mean Scale Scores of Mothers of Developmentally Delayed Children and Comparison Mothers

Scale	M	S.D.	t	p
Disciplinarian				
Comparison Mothers*	20.47	6.25	1.12	.21
Mothers of Delayed Children**	21.63	6.78		
Indulgent				
Comparison Mothers	23.19	5.93	.16	.61
Mothers of Delayed Children	23.36	6.90		
Protective				
Comparison Mothers	24.97	4.70	1.93	.06
Mothers of Delayed Children	26.41	4.87		
Rejecting				
Comparison Mothers	21.01	6.36	2.80	.01
Mothers of Delayed Children	18.29	6.30		

*N = 167. **N = 55.

A comparison of the mean scale scores of the fathers and mothers of the developmentally delayed group showed no clear-cut significant differences, although the fathers had a tendency toward higher endorsement of disciplinarian attitudes. Table 2 lists these findings.

Only 46 mothers and 26 fathers of the developmentally delayed children completed the Maryland forms at the year-long follow-up. A comparison of the mother's mean scores for each scale between T_1 and T_3 for Groups I and II combined are presented in Table 3, while that of Group III is shown separately in Table 4.

Table 2

Mean Scale Scores of Mothers and Fathers of Developmentally Delayed Children

Scale	M	S.D.	t	p
Disciplinarian				
Mothers*	52.18	6.78	1.67	.10
Fathers**	56.10	7.70		
Indulgent				
Mothers	49.54	6.90	1.31	.22
Fathers	46.44	7.08		
Protective				
Mothers	52.63	4.87	.53	.66
Fathers	51.63	5.23		
Rejecting				
Mothers	45.45	6.30	.03	.67
Fathers	46.31	6.50		

*N = 55. **N = 38.

Table 3

Comparison of Mean T-scores of Mothers Of Developmentally Delayed Children (N = 30) Treatment Groups, Time 1 and Time 3

Disciplinarian	M	S.D.	t	p
Time 1	51.16	10.16	1.41	.169
Time 3	48.96	9.27		
Indulgent				
Time 1	51.30	11.69	.02	.985
Time 3	51.26	10.70		
Protective				
Time 1	53.63	11.24	.03	.973
Time 3	53.56	8.02		
Rejecting				
Time 1	44.93	9.77	1.26	.218
Time 3	46.76	8.73		

Table 4

Comparison of Mean T-scores of Mothers of Developmentally Delayed Children (N = 16) Untreated Subjects, Time 1 and Time 3

Disciplinarian	M	S.D.	t	p
Time 1	52.68	10.96	.13	.900
Time 3	52.93	13.28		
Indulgent				
Time 1	48.00	10.48	.24	.816
Time 3	47.56	11.12		
Protective				
Time 1	51.37	10.13	1.00	.333
Time 3	53.31	10.45		
Rejecting				
Time 1	46.62	10.11	0	1.00
Time 3	46.62	11.44		

There was no significant attitude change in either group on any of the four scales. The same analysis was done for the fathers and similar results were obtained, with the exception of an increase in the endorsement of rejecting attitudes by the fathers in Group III. Tables 5 and 6 detail these results.

Table 5

Comparison of Mean T-scores of Fathers of Developmentally Delayed Children (N = 17) Treatment Groups, Time 1 and Time 3

Disciplinarian	M	S.D.	t	p
Time 1	56.64	13.96	.69	.500
Time 3	55.11	12.14		
Indulgent				
Time 1	47.17	11.27	.14	.891
Time 3	47.47	8.18		
Protective				
Time 1	52.47	10.57	.57	.575
Time 3	53.82	11.89		
Rejecting				
Time 1	45.05	9.86	.69	.498
Time 3	43.64	8.55		

Table 6

Comparison of Mean T-scores of Fathers of Developmentally Delayed Children (N = 9) Untreated Subjects, Time 1 and Time 3

Disciplinarian	M	S.D.	t	p
Time 1	51.00	11.19	.34	.740
Time 3	51.88	10.15		
Indulgent				
Time 1	51.77	9.68	1.47	.180
Time 3	48.66	6.65		
Protective				
Time 1	55.88	9.36	1.06	.322
Time 3	51.33	9.04		
Rejecting				
Time 1	43.33	7.07	2.88	.020
Time 3	49.33	8.66		

D. Discussion

The results demonstrated that the mothers of the developmentally delayed children scored significantly lower than mothers of non-problem children on the Rejecting scale while there was no measureable difference between their attitudes on the Indulgent scale. These results appear to be quite opposite from those obtained by Wetter, which is somewhat puzzling when considering the probable overlap when discussing populations of this type.

The finding that there was no significant difference between the two groups of mothers on the Disciplinarian scale is similar to that reported by Cook concerning his mildly handicapped group. Unlike the results reported in the Pittfield and Oppenheim study, the findings in the present report do not indicate that the mothers of the delayed children are particularly more strict (Disciplinarian) or indulgent, although they might be considered more detached (Rejecting).

After reviewing the literature, Bell (1958) concluded that mothers of children with a variety of emotional or physical disorders tend to have overprotective attitudes. The results from this study seem to corroborate that opinion.

There were no measurable differences between the responses of the mothers and fathers of the developmentally delayed children which is consistent with Pumroy's data concerning scores of male and female respondents.

It is particularly interesting that the findings reported here demonstrate no significant change in the parents' attitudes from T_1 to T_3. The fact that there were numerous changes in the behaviors of the mothers in Group I and II leads one to wonder about the lack of a relationship between attitude and behavior, especially since the current findings were contrary to Brody's conclusion. Further speculation on this relationship will not be considered.

Since the MPAS has no available data on a test-retest correlation, it is conceivable that the MPAS is not a sensitive enough instrument to detect change.

The results showed that the fathers in Group III did increase their endorsement of Rejecting attitudes over the year, but because the population was so small its significance is open to question.

The data presented here, as well as in other studies, support the notion that parents' attitudes are influenced by their children's handicap. Since the intervention program could do nothing to change the children's handicap directly, it follows that parents' attitudes would not change.

The data reported here suggest that the children's developmental delay and their parents' attitudes were related to each other and that these attitudes were not altered following behavioral intervention. No doubt it would be interesting to look further into the relationship (or better, the lack of it) of these parents' childrearing attitudes and their observed behavior.

The similarities or discrepancies between this and other attitude studies must be considered with recognition of the limitations involved when comparing the results of studies using different attitude measures and populations.

RESULTS 5: SOCIAL INTERACTION REPORTS

A. Background

The study already provided for objective tabulation of behaviors in the laboratory, (observational data), and parent reports of their perceptions of the child's behaviors in a wide variety of situations (Washington Symptom Checklist). The investigators were interested in acquiring a report of child behaviors in another setting by a judge who knew the child but had no direct contact with the research. An unstructured open-ended assessment seemed desirable since it was anticipated that "key" behaviors might be very different in different children. None of the existing behavior rating scales seemed appropriate for use by many different judges, each of whom knew the child he or she was rating in one of a variety of situations.

B. Procedure

When subjects first entered the research, the parent was asked to provide the name and address of someone who knew the child well enough to be able to describe his or her usual behavior outside the home. Most commonly the names of teachers or day-care personnel were supplied. These people were then mailed a request form, which is appended to this report, and a cover-letter. The same procedure was followed at the time of the final behavior observations. The informant at Time 3 was not, in most cases, the same as at Time 1. The respondee was provided with a blank 3"x5" card in the anticipation that most reports would be of the same length.

When the cards had been returned by an informant, they were assessed by a graduate student (Ph.D. level) in Psychology who had no contact with the research or with the subjects. The remainder of this section reports the procedures she devised and defined in order to accomplish her task.

Each SIR was encoded, using 14 possible categories with the opportunity for a positive or negative code for each category. The encoding categories correspond to those suggested categories given in the instructions, with the addition of one more, (physical responsiveness), which was frequently addressed in the SIRs. The categories are:

1. Sociability
2. Independence
3. Demeanor
4. Response to correction or limits
5. Response to praise
6. Attention to activity
7. Initiation of interaction
8. Separation from mother
9. Display of emotion
10. Distractability from inappropriate behavior
11. Obedience
12. Activity level
13. Verbal communication
14. Physical responsivenes

In the encoding of an SIR, a particular category was marked when a statement in the SIR addressed the subject's behavior delineated by that

category. A category was marked only when a corresponding statement was made in the SIR, i.e., for any encoding of an SIR, not all categories were marked. Only one mark was possible for each category in the encoding of an SIR. The marking of a positive or negative code for any category was based on reasonable inferences, made by a "blind" coder, about the observer's judgment of value, as given in the wording of the statements.

Two SIRs were encoded for each subject, one at Time 1 and one at Time 3. The possible total number of codes for any one subject at either time ranged from 0 to 14. The actual total number of codes was expressed as the total percent of social evaluations (100%). The plus codes were computed into two percentages corresponding to two possible measures: percent of Time 1 which were positive and percent of Time 3 which were positive.

C. Results

Not all respondents whose judgments were solicited, responded, even after several mailings. The data were only analyzed if both Time 1 and Time 3 Social Interaction Reports were received. There were, therefore, data on 16 Group I subjects, 14 Group II subjects, and 15 Group III subjects. The table below summarizes the results.

	Mean Time 1 Positive %	Mean Time 3 Positive %	Mean Gain (%)	No. of Subjects With Losses
Group I	41.5	74	32.5	2
Group II	50	84.6	34.6	3
Group III	56	67.3	11.3	5

D. Discussion

While both the instrument used to acquire data and the means of assessing the data were crude and primitive, the findings point in the anticipated direction and are in accord with the hypothesis originally formulated. Based on the judgment of outside reporters, children whose parents had participated in behavioral counselling were seen to have made larger positive gains in social interaction than were described on the comparison subjects. The comparison subjects were judged to be the highest of the three groups at the beginning and the lowest of the three groups at the end. Also their mean gain was only one-third that of the other two groups. Both of the experimental groups appeared to have profited equally.

University of Washington
Parent-Child Interaction Research
SOCIAL INTERACTION REPORT

Please use this card to describe the quality of the child's interactions with adults and with other children. We are interested in only the highlights of a nutshell description,--those aspects of his behavior which are typical or characteristic for him. The items listed below are the kinds of things we're interested in if they are relevant and outstanding. Describe concrete behaviors.

Is he sociable or isolate? Is he independent or demanding of attention? Does he characteristically cry, smile, whine, or complain a lot? How does he accept correction or limits? How does he respond to praise? How long does he stay with an activity? Does he initiate interaction? How does he separate from his mother? Does he display anger, jealousy, temper, etc.? Can he be distracted from undesirable or inappropriate behavior? Is he disobedient or obedient? Is he overactive or lethargic? Does he communicate verbally?

RESULTS 6: PARENTS' FINAL QUESTIONNAIRE

A. Background

Since indirect outcome indices were available based on 1) the investigators' evaluation of the sequential behavioral observations, and 2) the reports of outside observers via the social interaction reports, the investigators hoped also to obtain a direct assessment from each participating parent of the effectiveness of the program in their experience; it was hoped that this information would broaden the data base on which outcome conclusions might be based.

B. Procedure

At their last session, parents were asked to fill out an open-ended questionnaire which attempted to obtain their assessment of the effectiveness of the program, using the frequency and severity of problems between parent and child at the beginning of the year and now as the criterion measure. Parents who had participated in the non-treatment comparison observations were also asked about the frequency and severity of problems, and about changes over the past year. A wide variety of responses was obtained, and they were extremely difficult to classify. The technique did not yield very usable information. Those aspects of the responses which lent themselves to tabulation are summarized below:

C. Results

The first question dealt with current problems and provided five categories of response. The responses of the parents of the three groups were:

	Group I N = 17	Group II N = 14	Group III N = 18
Hardly any	3	3	4
Some	2	1	2
About average	8	4	8
More than comfortable	4	1	4
Really bothered about it	0	0	0

According to a Chi-square test there was no significant difference in the response distribution of experimental and comparison subjects, nor between the experimental subjects who had experienced the two different instruction programs.

The parents who had received parent instruction sessions were asked whether the sessions had made a difference. One parent in Group I and one parent in Group II said that they had not; the remainder marked "yes." They were next asked whether the behaviors that had originally concerned them still occurred. The responses were as follows:

	Group I	Group II
Yes	11	8
No	6	5
Omit	0	1

Finally they were asked, if so, to what extent? Their replies fell as follows:

	Group I	Group II
No improvement	3	2
Still occur, but less	10	7
None	4	4

D. Discussion

It was clear from the responses obtained that not all parents interpreted the questions in the same way; apparently part of the responses referred to the child's area of delay, while others of them referred to behavioral habits and interactions. Thus, this attempt to obtain an evaluation on the part of the participant parent did not elicit the information we had anticipated.

DISCUSSION

One of the most important issues raised by this report is definition of the secondary effectiveness of the behavioral counselling techniques used in this study. The parent-instruction programs were designed to teach parents to change their interactions with their children, and those measured changes can be construed as direct and primary results of the teaching. Changes in child behaviors, whether rated by observers in the laboratory, by parents at home or by outside observers in other settings, as well as changes in the child's developmental skills, or changes in parents' attitudes toward childrearing would have to be considered to be secondary and indirect results. To summarize the findings in simple form, there were clearcut primary behavioral changes in the parents who participated in the training program, and there were demonstrable changes in the interactions between parent and child. There were also some secondary effects on child behaviors as perceived by trained observers in the laboratory and by outside informants in other settings. But parents continued to appraise their child with realistic recognition of his/her developmental delay, and they continued to perceive him as being different from other children in a variety of ways. On the whole, those differences and delays did not change or go away, at least within the limits of the time span involved and the measuring instruments used in this study. Interactions became less stressful and negative and more positive and friendly. Parent and child "got along together better," and parents were more comfortable and secure about the appropriateness of their child-management techniques. The child was perceived in more positive terms by others. But these changes did not make the child more like most children in parent reports of either developmental level or behavioral characteristics.

The results of this study demonstrated that behaviors for the parents and children changed. Yet the other measured factors demonstrated marginal changes. The positive affect changes in the children were supported by the results from the teachers' written descriptions on the social interaction cards. These results do suggest a verification of the more friendly and happier behavior in the children.

There were almost no significant changes in the results of the Washington Symptom Checklist or the Maryland Parent Attitude Survey. There were some trends on the results of the Minnesota Child Development Inventory, but these trends were exhibited in specific areas rather than being general.

If indeed the children did feel happier, more confident with themselves and enjoy longer periods of playing with the toys, then why didn't other improvements show? Is it possible that these components were direct reflections of the developmental delay, and no amount of intervention could change this fact? Or is it possible that the child can feel better about himself and display happier behavior without that affecting his functional performance? Or is it possible that our measuring tools would need to be more detailed and specific to measure the subtle changes in the children's language and performance? Were there qualitative rather than quantitative changes? If indeed the children's confidence and happiness has improved, then is it possible that changes in their performance will only be displayed in subtle and longer-term development?

This study also provided the opportunity to examine more closely the differences and similarities between the developmentally delayed sample and other population samples studied in earlier related projects. Observational data revealed clearcut differences. In the control dimension, mothers tended to be more controlling than comparison mothers while their children exercised low amounts of direct control, as compared with non-delayed comparison children, but high amounts of ignoring and non-acceptance. Terdal, Jackson, and Garner (1976) noted similar differences between normal and developmentally delayed groups. However, the interaction-analysis system employed by those authors did not permit analysis of the affective dimension of the interpersonal transactions. The results of the present study suggest that the most prominent behavioral differences between the delayed subjects and their normative counterparts lie in high negative affect and low positive affect on the part of both mothers and children, and the affective elements of the interactions were as susceptible to change following parent instruction as the control elements were. Bromwich (1976) has described an approach to infant intervention which focuses on enhancing the quality of mother-infant interaction. She concludes that the relationship must be positive in affect and grounded in mutual enjoyment and satisfaction in order to be consistently growth-promoting for the child and the mother.

Finally, it should be noted that in earlier studies, high control, high negative affect and low positive affect had been noted as typifying the interactions between more seriously handicapped children with motor disabilities and their mothers. The similarity between the earlier findings and those noted in the present more mildly delayed sample are striking.

At the beginning of this study there were no differences between the behavioral records of the three subsamples of subjects. At the end of the study both treatment groups were clearly different from the untreated comparison group on a number of behavioral dimensions. Furthermore, although significant differences between the two treatment groups were noted on only five measures (all favoring the Group II program), that group also exhibited a noticeable and consistent trend toward larger differences on eight additional measures. The Group II program combined group discussions and individually monitored play sessions. Thus, there appeared to be not only an economic advantage to replacing some individual instruction with group experience, but a decided advantage in effectiveness as well.

In a forthcoming paper, McMahon and Forehand describe a study of the effectiveness of "nonprescription behavior therapy," a brochure to teach mothers to correct their children's inappropriate mealtime behaviors. They documented substantial decreases in inappropriate behavior, maintained at six-week follow-up. The instructional material utilized in the group discussion meetings in the current study probably warrant being called nonprescription therapy, in that they dealt with appropriate responses to problem behaviors in people and situations not directly related to the participants' personal experiences. Further exploration in this direction is clearly indicated. The present authors still have a conviction that immediate personal feedback is also an important component of the most effective program and that the two approaches need to be balanced for optimal results.

Finally, the results reported here appear to confirm the original premise of the study. Parents of developmentally delayed children encounter many

problems not experienced by other parents. Often they have little concrete and specific guidance in responding appropriately to their child's behavior, which is, in fact, different from the behavior of his age-mates. There are many tensions and areas of conflict, and the self-esteem, confidence, and competence of both parent and child may be at risk. While the fundamental condition was generally unchanged, the affective climate of daily interactions became more positive and more enjoyable, and parents were helped to encourage and accept independence and confidence on the part of their children within the limits of their capacities.

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